SYDNEY SOLVENTS PTY LTD.
3/10 Production Place
Jamisontown NSW 2750
www.sydneysolvents.com.au
CHEMCALL: 1800 127 406

FOR FURTHER INFORMATION, PLEASE REFER TO THE SDS

Issue: November 16

PRODUCT: N-Methyl-2- Pyrrolidone
Other Names: NMP

Uses: Industrial Application

UN No.	N/A
Dangerous Goods Class	N/A
Subsidiary Risk	N/A
Pack Group	N/A
Hazchem	N/A
Poison Schedule	N/A

Hazardous Nature: This product is not classified as hazardous under Australian Code for the Transport of Dangerous Goods

Physical Characteristics (Typical) — Section 9 of SDS

Appearance	Clear, colourless liquid
Boiling Point/ Range (°C):	204
Flash Point (°C):	86-91
Specific Gravity/ Density (g/ml @ 15°C):	N/A
Chemical Stability:	Stable at room temperature and pressure

Product Ingredients — Section 3 of SDS

N-Methyl-2-Pyrrolidone	872-50-4	99.8-100%

For further ingredients information, please refer to the full SDS.

GHS Pictograms — Section 2 of SDS

For further Risk and Safety information, please refer to the full SDS.

DEFINITIONS

Dangerous Goods	Products that are classified as Dangerous for Storage and Transport: these products are allocated a UN No., with accompanying Class, Pack Group, and Sub. Risk, if required. Products that do not have a specific description under the code, but have low flash points, or such, must be classified under their most significant risk, eg. Flammable Goods N.O.S. (Not otherwise specified), UN 1993
Poisonous Substance	Products that are classified under the poisons schedule are a poisonous substance. The proportion of the poison in the product will determine its numerical classification.
Hazardous Substance	Products are considered to be Hazardous if they pose an intrinsic risk to human or environmental health, such as mutagens (able to change DNA), teratogens (able to result in birth defects), carcinogens (able to generate cell abnormalities), etc. Materials are not hazardous substances if they pose risks such as potential for misuse, like flammability, or explosions when heated and ignited.

SUMMARY INFORMATION ONLY

1. IDENTIFICATION

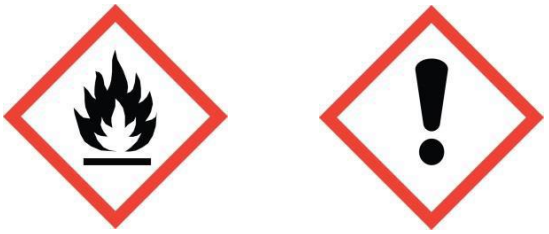
Product Name: **N-Methyl-2Pyrrolidone**
Other Names: NMP
Chemical Family: N/A
Recommended Use: Industrial Application
Supplier: Sydney Solvents Pty. Ltd.
ABN: 51 104 642 695
Street Address: 3/10 Production Place, Jamisontown NSW 2750
Telephone: 02 4722 5060
Fax: 02 4722 5070
Emergency phone: CHEMCALL: 1800 127 406
All other inquiries: 1800 60 50 40

2. HAZARDS IDENTIFICATION

Hazardous Nature

This product is classified as hazardous under National Occupational Health and Safety Commission (NOHSC), Australia. Not classified as Dangerous Goods according to the Australian Code for the Transport of Dangerous Goods by Road and Rail.

GHS Pictograms



Risk Phrase

R61 (2) May cause harm to the unborn child
R36/37/38 irritating to eyes, respiratory system and skin.

Safety Phrase

S23 Do not breathe gas/fumes/vapour/spray
S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S53 Avoid exposure – obtain special instruction before use.
S36/37/39 Wear suitable protective clothing, gloves and eye/face protection

Dangerous Goods Classification 3
Poisons Schedule 5

3. COMPOSITION: Information on Ingredients

Chemical Ingredient	CAS No.	Proportion (%v/v)
N-Methyl-2-Pyrrolidone	872-50-4	99.8-100%

4. FIRST AID MEASURES

For advice, contact Poisons Information Centre (Phone Australia: 13 1126) or a doctor. Ingestion

If swallowed, DO NOT induce vomiting. Keep at rest. Seek immediate medical attention.

Eye Contact

Flush eyes with large amounts of water until irritation subsides. Seek immediate medical attention.

Skin Contact

Flush area with large amounts of water and wash area with soap if available. Remove contaminated clothing, including shoes, and launder before reuse. Seek medical attention for skin irritations.

Inhalation

Using proper respiratory protection, immediately remove the affected victim from exposure. Administer artificial respiration if breathing is stopped. Keep at rest. Seek immediate medical attention.

First Aid facilities

Provide eye baths and safety showers.

Medical Attention

Treat according to symptoms. Avoid gastric lavage: risk of aspiration of product to the lungs with the potential to cause chemical pneumonitis.

Advice to Doctor

Treat symptomatically. No specific antidote. Potential danger from aspiration must be weighed against possible oral toxicity when deciding to induce vomiting.

5. FIRE FIGHTING MEASURES

Shut off product that may 'fuel' a fire if safe to do so. Allow trained personnel to attend a fire in progress, providing firefighters with this Safety Data Sheet. Prevent extinguishing media from escaping to drains and waterways.

Suitable extinguishing media

Caron dioxide, dry chemical or foam.

Hazards from combustion products

Oxides of nitrogen, carbon monoxide and carbon dioxide.

Precautions for fire fighters and special protective equipment

Fire fighters should wear Self-Contained Breathing Apparatus (SCBA) operated in positive pressure mode and full protective clothing to prevent exposure to vapour or fumes. Water spray may be used to cool down heat-exposed containers. Fight fire from safe location. This product should be prevented from entering drains and watercourses.

6. ACCIDENTAL RELEASE MEASURES

Emergency Procedures

Wear appropriate personal protective equipment and clothing to prevent exposure. Extinguish or remove all sources of ignition and stop leak if safe to do so. Increase ventilation. Evacuate all unprotected personnel. If possible contain the spill. Place inert absorbent, non-combustible material onto spillage. Use clean non-sparking tools to collect the material and place into suitable labelled containers for subsequent recycling or disposal. Dispose of waster according to the applicable local and national regulations. If contamination of sewers or waterways occurs inform the local water and waste management authorities in accordance with local regulations.

7. HANDLING AND STORAGE

Precautions for safe handling

This product is Flammable. Do not open near open flame, sources of heat or ignition. No smoking. Keep container closed. Handle containers with care. Open slowly to control possible pressure release. Material will accumulate static charge. Use grounding leads to avoid discharge (electrical spark).

Conditions for safe storage

Store in a cool, dry place away from direct sunlight. Do not pressurise, cut, heat or weld containers - residual

vapours are combustible. This product will fuel a fire in progress.

Incompatible materials

Painted surfaces, natural rubber, polystyrene, EDPM, neoprene

8. EXPOSURE CONTROLS: PERSONAL PROTECTION

National Exposure Standards

No exposure limit established.

Biological limit values

None established

Engineering Controls: Ventilation

The use of local exhaust ventilation is recommended to control process emissions near the source. Laboratory samples should be handled in a fume hood. Provide mechanical ventilation of confined spaces. Use explosion-proof ventilation equipment.

Personal Protective Equipment

Respiratory Protection: Where concentrations in air may exceed the limits described in the National Exposure Standards, it is recommended to use a half-face filter mask to protect from overexposure by inhalation. A type "A" filter material is considered suitable for this product.

Eye Protection: Always use safety glasses or a face shield when handling this product.

Skin/ Body Protection: Always wear long sleeves and long trousers or coveralls, and enclosed footwear or safety boots when handling this product. It is recommended that chemical resistant gloves (e.g. PVC) be worn when handling this product.

9. PHYSICAL AND CHEMICAL PROPERTIES

Property	Unit of measurement	Typical value
Appearance	-	Clear, colourless liquid
Boiling Point/ Range	°C	56
Odour	–	Amine odour
Melting Point	°C	-24.2
Flash Point	°C	86-91
Density @ 15°C	g/ml	1.03g/cc
Vapour Pressure @ 20°C	kPa	0.32-0.4
Explosive Limits (LEL – UEL)	%	Product is not explosive
Vapour Density @ 20°C	kPa	3.4 (15-32.2 approx.)
Autoignition Temperature	°C	245
Viscosity @ 20°C	cSt	1.7 mPa.s
Percent Volatiles	%	N?A
Solubility with Water	% w/w	1000g/l (20°C)

The values listed are indicative of this product's physical and chemical properties. For a full product specification, please consult the Product Data Sheet.

10. STABILITY AND REACTIVITY

Chemical Stability

Stable at room temperature and pressure

Conditions to avoid

Sources of heat and ignition, open flames.

Hazardous decomposition products

Thermal decomposition may result in the release of toxic and/or irritating fumes, smoke and gases including carbon monoxide, carbon dioxide, and oxides of nitrogen.

Hazardous reactions

Reacts with Nitric acid. With unstablised product, spontaneous polymerization may occur e.g. through ambient heat.

Hazardous Polymerisation

Polymerisation may occur at elevated temperatures such as a fire. If polymerization occurs in a close container, violent rupture may result. Risk of spontaneous and violent self-polymerisation if inhibitor is lost or product is exposed to excessive heat. Risk of spontaneous polymerization when heated or in the presence of UV radiation stabilized product, spontaneous polarization may cause ignition. Risk of spontaneous polymerization oxygen depletion of the liquid phase. Radical formation can cause exothermic polymerization. Reacts with peroxides and other radical components. Risk of spontaneous polymerization in the presence of starters for radical chain reactions (e.g. peroxides). Reacts with nitric acid. Polymerises explosively in contact with strong oxidizing agents. Risk of spontaneous polymerization in the presence of oxidizing agents. Risk of spontaneous polymerisation in the presence of starters for radical chain reactions (e.g.peroxides). Reacts with nitric acid. Polymerises explosively in contact with strong oxidizing agents. Risk of spontaneous polymerization in the presence of oxidizing agents. The product is stabilized against spontaneous polymerization prior to dispatch. The product is stable if stored and handled as prescribed/ indicated.

11. TOXICOLOGICAL INFORMATION

Acute Effects

Ingestion

This material will cause irritation to the throat, trachea and respiratory tract. It may cause nausea. Swallowing large amounts will have a narcotic effect: headaches, dizziness, euphoria, loss of appetite and possibly loss of consciousness. Vomiting may cause the product to be aspirated to the lungs resulting in chemical pneumonitis.

Eye Contact

Liquid may cause moderate to severe eye irritation and corneal damage. Most subjects exposed to vapour concentrations of 500 - 1000 ppm experience irritation to the eyes.

Skin Contact

Brief contact may cause mild irritation. Prolonged or repeated exposure may cause defatting resulting in dryness or cracking of the skin (irritant contact dermatitis). Due to its low toxicity and high volatility, this product is unlikely to be absorbed through the skin in harmful amounts unless evaporation is prevented.

Inhalation

Vapour concentrations above 500 ppm are irritating to the nose and throat. High vapour concentrations (above 1000 ppm) result in narcotic effects including possilble headaches, dizziness, loss of coordination, nausea, loss of appetite and possibly loss of consciousness.

Chronic Effects

Repeated or prolonged skin contact with the liquid may cause irritant contact dermatitis. A study of 800 workers occupationally exposed to these vapours (600 - 2150 ppm) over an 18 year period revealed no significant adverse health effects compared with unexposed workers.

Other Health Effects Information

Exposure to this product potentiates (greatly enhances) the liver and kidney toxicity of chlorinated hydrocarbon solvents such as trichloroethylene and chloroform. Fasting and diabetes increases the normal levels of acetone in the body. Dieters and diabetics exposed to levels of acetone may feel overexposure effects at lower levels of occupational exposure. Exposure to high concentrations of acetone may aggravated pre- existing skin, respiratory, blood, liver, kidney and reproductive disorders in humans.

Reproductive Toxicity

May cause harm to the unborn child.

Acute Toxicity – Oral

N-Methyl-2-Pyrrolidone

Substance/s: LD50 (oral, Rat):4150 mg/kg

Acute Toxicity – Dermal

(N-Methyl-2-Pyrrolidone)

LD50 (Dermal, Rat):≥5000mg/kg

Risk of absorption through the skin of n-methyl-2pyrrolidone

Acute Toxicity – Inhalation

(N-Methyl-2-Pyrrolidone)

LC50 (Rat, inhalation (aerosol)): >5.1 mg/L (4H)

12. ECOLOGICAL INFORMATION

Ecotoxicity

The available ecological information is given below

Persistence/ Degradability

N-Methyl-2-Pyrrolidone
Readily biodegradable
73% biodegradability in 28 days
Modified MITI method

Mobility

Binding to the soil phase, sediment or clarification sludge is not expected

Bioaccumulative Potential

Not expected to be bioacculative

Environmental Protection

Prevent this material entering waterways, drains, and sewers

Acute Toxicity - Fish

N-Methyl-2-Pyrrolidone
LC50 (Onocorhynchus mykiss): >500 mg/L (96h)
LC50 (Pimephales promelas): 1072 mg?l
LC50 (Salmo gairdneri): 3048 mg/L
LC50 (Lepomis macrochirus): 832 mg/L

Acute Daphnia

N-Methyl-2-Pyrrolidone
EC50 (Daphnia magna (water flea): >1000 mg/l (24h)
EC10: 1107mg/L (96h) palaemonetes vulgaris)

Acute Toxicity – Algae

N-Methyl-2-Pyrrolidone
EC50 (Desmodesmus subspicatus): 600.5 mg/L (72h)
EC10: 125 mg/l (72h) Desmodesmus subspicatus)

N-Methyl-2-Pyrrolidone

Acute Toxicity – Bacteria

N-Methyl-2-Pyrrolidone

EC50 (activated carbon): 100mg/L (48h)

IC50:>600 mg/L (bacteria)

Other information

No observed effect concentration (NOEC)

12.5mg/L (21d)

Species: Daphnia magna (water flea)

13. DISPOSAL CONSIDERATIONS

Disposal Methods

Empty packaging should be taken for recycling, recovery or disposal through a suitably qualified or licensed contractor. Care should be taken to ensure compliance with national and local authorities. Packaging may still contain fumes and vapours that are flammable and harmful. Ensure that empty packaging is allowed to dry.

Special Precautions for Landfill or Incineration

This product is NOT suitable for disposal by either landfill or via municipal sewers, drains, natural streams or rivers.

14. TRANSPORT INFORMATION

Road and Rail Transport		Marine Transport		Air Transport	
UN No.	N/A	UN No.	N/A	UN No.	N/A
Proper Shipping Name	N/A	Proper Shipping Name	N/A	Proper Shipping Name	N/A
DG Class	N/A	DG Class	N/A	DG Class	N/A
Sub. Risk	N/A	Sub. Risk	N/A	Sub. Risk	N/A
Pack Group	N/A	Pack Group	N/A	Pack Group	N/A
Hazchem	N/A	Hazchem	N/A	Hazchem	N/A

15. REGULATORY INFORMATION

Country/ Region: Australia

Inventory: AICS

Status: Listed

Poisons Schedule:

Not scheduled

Hazard Category

Irritant, Toxic for reproduction development category 2

16. OTHER INFORMATION

Reasons for Issue: Upgrade to GHS SDS; Amalgamated supplier changes in all sections

Abbreviations:

AICS: Australian Inventory of Chemical Substances

CAS Number: Chemical Abstracts Number

IARC: International Agency for Research on Cancer

NOHSC: National Occupational Health and Safety Council

References:

- Supplier Safety Data Sheets
- http://chem.sis.nlm.nih.gov/chemidplus (November 15)
- http://hsis.ascc.gov.au/SearchHS.aspx (November 15)
- Ecotoxicology data: http://cfpub.epa.gov/ecotox/quick_query.htm (November 15)
- *Sax's Dangerous Properties of Industrial Materials*, Richard J. Lewis Snr., pub. Canada (2000)

The information sourced for the preparation of this document was correct and complete at the time of writing to the best of the writer's knowledge. The document represents the commitment to the company's responsibilities surrounding the supply of this product, undertaken in good faith. This document should be taken as a safety guide for the product and its recommended uses, but is in no way an absolute authority. Please consult the relevant legislation and regulations governing the use and storage of this type of product. For further information, please contact Sydney Solvents Pty. Ltd.